

an image pickup apparatus according to the second embodiment;

Fig. 3 is a block diagram showing the main part of an image pickup apparatus according to the third  
5 embodiment;

Fig. 4 is a block diagram showing the main part of an image pickup apparatus according to the fourth embodiment;

Fig. 5 is a view showing the structure of primary  
10 color filter arrays of image pickup elements;

Fig. 6 is a view showing the structure of complementary color filter arrays of image pickup elements;

Fig. 7 is a view showing the arrangement of a user  
15 interface according to the first and second embodiments;

Fig. 8 is a view showing the arrangement of a user interface according to the third embodiment;

Fig. 9 is a view showing image pickup data to be  
20 extracted according to the first to fourth embodiments;

Fig. 10 is a view for explaining the order of operation for adjusting variations in image pickup elements according to the fourth embodiment;

Fig. 11 is a block diagram showing a prior art;  
25 and

Fig. 12 is a block diagram showing another prior art.

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## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Fig. 1 is a block diagram showing the main part of an image pickup apparatus according to the first embodiment. This embodiment will exemplify a method of writing white image data, which is obtained by picking up the image of a white sheet in order to use it as white balance data, into an attached data area of each image file when each pickup image is recorded on a recording medium.

Referring to Fig. 1, an image pickup data input terminal 101 receives image pickup data obtained by an image pickup element having four, R, G1, G2, and B, color filters and converted into digital data.

This image pickup data is processed in a main image processing unit 102 for various image processing operations for recording with high image quality as in a digital image recording apparatus (image pickup apparatus) such as a general digital camera. The processed image pickup data is then encoded by an encoding processing unit 103 in accordance with a JPEG recording format.

On the other hand, to obtain MWB data, the image of white sheet is picked up, and the resultant data is held as image pickup data. Part of the MWB image pickup data, e.g., pixel data of 64 pixels in the central portion of the two-dimensional image space of one picture is extracted by a white sheet data

extraction unit 104, as shown in Fig. 9. An averaging processing unit 105 obtains an average value of 16-pixel data of each color component signal of R, G1, G2, or B.

5           An image filing unit 106 forms an image file into which the average value of the pixel data of each color component obtained as described above is converted together with image pickup data to be actually reproduced. The average value is allocated to a  
10           predetermined MWB white sheet data area attached to an image file. A medium-recording unit 107 records the average value together with the original encoded image data as one image file on a detachable recording medium such as a flash memory.

15           In this embodiment, since the white sheet data is obtained by extracting an image of 64 pixels in the central portion of the picture, any color image except white such as a white sheet can be picked up around the 64-pixel area. When only white image data is used, the  
20           entire picture must be set white by zooming or the like.

          A technique for setting in the picked-up image white data for adjusting the white balance in the MWB mode will be described below. A medium on which an  
25           image file is recorded by the above recording scheme is loaded in the image pickup apparatus, and image reproduction is done using a user interface shown in